Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROKI ENDO, TAICHI NATORI, and SYUNJI HORIUCHI

Appeal No. 2004-1528
Application No. 09/272,331

HEARD: February 22, 2005

Before KRASS, GROSS, and NAPPI, ***Administrative Patent Judges***.
GROSS, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 17, which are all of the claims pending in this application.

Appellants' invention relates to a method of producing a color filter and the resulting product. The color filter includes three primary colors, red, green, and blue, wherein each color is formed from two overlapping layers, with each layer made from a positive photoresist containing a subtractive dye. Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A method of producing a color filter, comprising the steps of:

forming a filter layer of a second color in a substrate region in which a filter element of a first color is to be formed; and

overlapping a filter layer of a third color different from said second color on said filter layer of said second color and on said substrate;

wherein two overlapping filter layers form the filter element, and

wherein said filter layer of a third color is made from a dye containing photoresist.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Snow et al. (Snow)	4,876,167	Oct. 24, 1989
Needham et al. (Needham)	5,140,396	Aug. 18, 1992
Yamada	5,805,966	Sep. 08, 1998
Ugai et al. (Ugai)	EP 0726503	Aug. 14, 1996

Claims 1 through 4 and 6 through 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Snow in view of Needham.[1]

[1] We note that claims 1, 2, 4, 6, 7, and 9 through 16 were rejected under 35 U.S.C. § 102(b) in the Final Rejection. The examiner then indicated in the Advisory Action dated September 10, 2003, that the After Final Amendment dated August 14, 2003, and taking the limitation of a photoresist from claims 3, 8, and 17 and adding it to each of independent claims 1, 6, and 12, would be entered on appeal. The examiner further indicated in the Advisory Action that Needham had been applied against claims 3, 8, and 17 for its teachings regarding photoresists. Accordingly, the rejection for claims 1, 2, 4, 6, 7, and 9 through 16 was appropriately changed in the Answer to an obviousness rejection over Snow and Needham, as previously applied to claims 3, 8, and 17.

Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Snow in view of Needham, Yamada, and Ugai.

Reference is made to the Examiner's Answer (Paper No. 15, mailed December 16, 2003) for the examiner's complete reasoning in support of the rejections, and to appellants' Brief (Paper No. 14, filed October 6, 2003) and Reply Brief (Paper No. 18, filed April 21, 2004) for appellants' arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will affirm the obviousness rejection of claims 1 through 17.

Appellants (Brief, pages 7-8) argue the anticipation rejection of claims 1, 2, 4, 6, 7, and 9 through 16 from the Final Rejection, though the examiner implied in the Advisory Action that the rejection would be changed to an obviousness rejection over Snow and Needham as previously applied against claims 3, 8, and 17. In the Reply Brief (pages 3-4) appellants acknowledge the examiner's withdrawal of the anticipation rejection, but not the replacement thereof with an obviousness rejection. We will treat appellants' arguments for claims 1, 2, 4, 6, 7, and 9 through 16 as they would apply to the current

rejection as well as expanding appellants' arguments for claims 3, 8, and 17 to apply to all of the claims.

Appellants first contend (Brief, page 7) that in Figures 1 and 2 of Snow "[t]here is no example given such that the same color layer appears in both the first row and the second row." We assume that appellants mean that cyan, the only color shown in both rows, is a different layer in one row than in the other row since it is labeled differently in the two rows. However, Snow discloses (column 31, lines 47-51) that layers C1 and C2 "can be concurrently formed using the same coating composition." Therefore, the same color layer does appear in both the first and the second row. Furthermore, Needham shows in Figure 4B that the cyan filter layer 22C is formed both on the substrate next to the yellow filter and also over the yellow filter. Therefore, Needham also discloses the same color layer in both the first and the second rows.

Appellants argue (Brief, page 8) that Snow does not teach a dye containing photoresist. We agree. However, the rejection is under 35 U.S.C. § 103, with Needham being applied for its teachings of a dye containing photoresist.

Appellants assert (Brief, pages 8-9) that Needham teaches a single filter layer having a dye, not overlapping filter layers, and, therefore, that "it would not be obvious to overlap a filter layer made from a dye containing a [sic] photoresist on the

filter layer." However, Needham's figure 4B shows overlapping filter layers of yellow, magenta, and cyan. Needham explains (column 11, lines 9-20) that for a red, green, and blue filter, magenta and cyan layers formed by process of U.S. Pat. No. 4,808,501 (described in column 2, lines 49-60, as using dye containing positive photoresists) are overlapped with the yellow filter layer, as shown in Figure 4B.

Appellants argue (Reply Brief, pages 5-7) that neither Snow nor Needham discloses each of the claimed second and third colors being made from a dye containing positive photoresist. However, the combined teachings of Snow and Needham do suggest dye containing positive photoresists for the second and third colors.

Specifically, Needham discloses (column 1, lines 29-31) that color filters typically have red, green, and blue color or cyan, yellow, and magenta filters elements. Further, Needham discloses (column 21, lines 49-66) that U.S. Pat. No. 4,808,501 teaches a method of forming a color filter using dye containing positive photoresists, wherein for each color, a layer is formed, exposed, and developed. Snow teaches (column 29, line 65-column 30, line 2) that for red, green, and blue color filters, an arrangement of two superimposed layers each containing a different subtractive primary dye "offers advantages in light transmission and absorption as compared to employing a filter constructed of an additive primary dye." Therefore, in light of the combined

teachings, it would have been obvious to form each color with two overlapping layers of Needham's positive photoresists containing subtractive dyes, for enhanced light transmission and absorption as compared to a single layer of positive photoresists containing additive dyes. Consequently, we will sustain the obviousness rejection of claims 1 through 4 and 6 through 17.

We note that appellants indicate (Brief, page 5) that claim 5 "stands or falls alone with respect to the § 103(a) rejection." However, appellants (Brief, page 9) merely state that claim 5 "is also allowable for the reasons above. Moreover, this claim is further distinguished by the materials recited therein, particularly within the claimed combination." In other words, appellants submitted conclusionary statements in the Brief rather than actual arguments as to the separate patentability of claim 5. Appellants waited until the Reply Brief (pages 9-10) to present appropriate arguments for claim 5.

In accordance with 37 C.F.R. § 1.192(a) (which was in effect at the time of the Brief), arguments not included in the brief are generally considered waived. ***See also***, ***In re Berger***, 61 USPQ2d 1523, 1529 (Fed. Cir. 2002) and ***Interactive Gift Express, Inc. v. Compuserve Inc.***, 256 F.3d 1323, 1344, 59 USPQ2d 1401, 1417 (Fed. Cir. 2001), in which the Federal Circuit held that issues not raised in the Brief are waived. Nonetheless, we

will briefly address the arguments made in the Reply Brief. Specifically, appellants contend that Yamada and Ugai fail to teach why a skilled artisan would have modified Snow to include the particular pigments recited in claim 5 and assert that the examiner used impermissible hindsight. However, since Needham (column 2, lines 49-66) fails to disclose what specific dyes are to be used, the skilled artisan would have used any known dyes that were compatible with the photoresist. Yamada and Ugai merely evidence that azo pigments were known for yellow dyes, copper phthalocyanine pigments were known for cyan dyes, and xanthene pigments were known for magenta dyes. Note also that Snow discloses in Table 1 a monoazo dye for yellow and copper phthalocyanine for cyan, thereby further evidencing that the recited materials were known pigments for yellow and cyan dyes. Accordingly, we find that the examiner did not use impermissible hindsight, and we will sustain the obviousness rejection of claim 5.

We should point out that although the examiner's rejection of claims 1 through 4 and 6 through 17 was over the combination of Snow and Needham, it would appear that Needham's Figure 4B and the description thereof would have met the limitations of claims 1, 2, 4, 12, 13, and 17. In particular, Needham teaches forming

a yellow filter (layers 12Y and 14Y) on a substrate, overlapping a filter layer 22C of cyan on a portion of the yellow filter and on the substrate, and forming another layer 22M of magenta over the remaining portion of the yellow layer and on a portion of the cyan layer, thereby forming green, red, and blue color filter layers, respectively. The magenta and cyan layers are formed from a dye containing positive photoresist.

CONCLUSION

The decision of the examiner rejecting claims 1 through 17 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

ERROL A. KRASS
Administrative Patent Judge

ANITA PELLMAN GROSS
Administrative Patent Judge

ROBERT NAPPI
Administrative Patent Judge

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APG/RWK

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